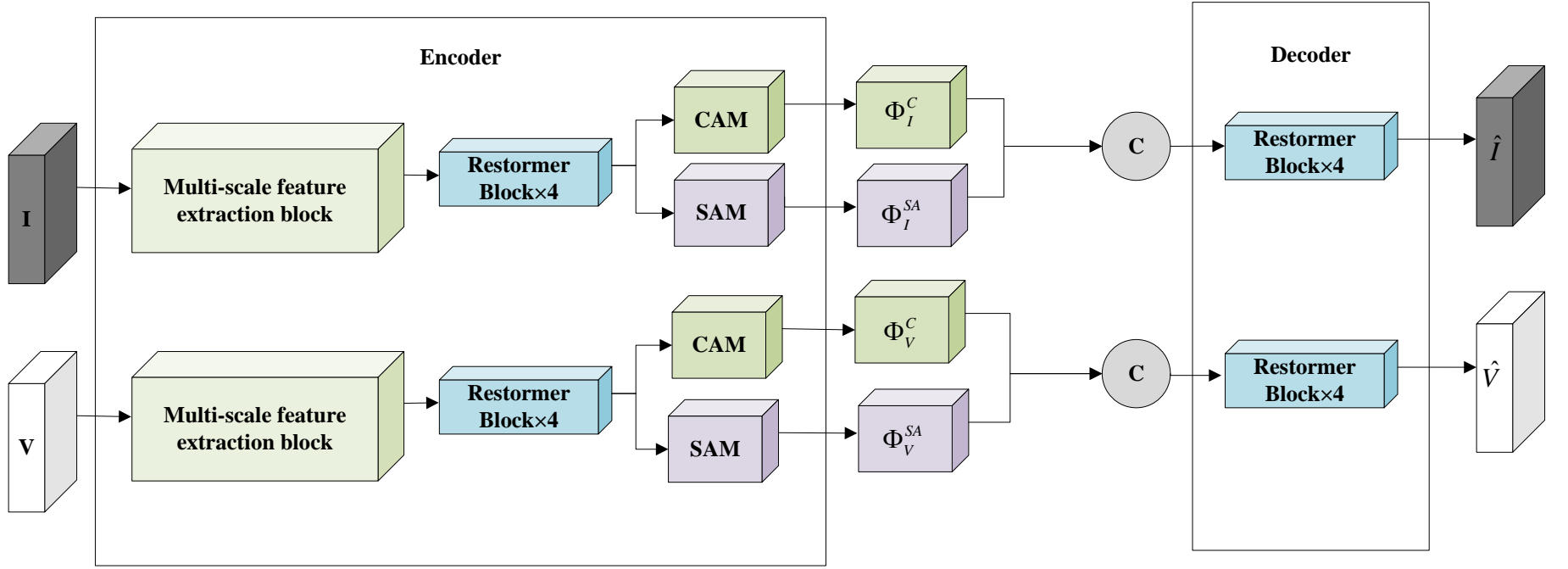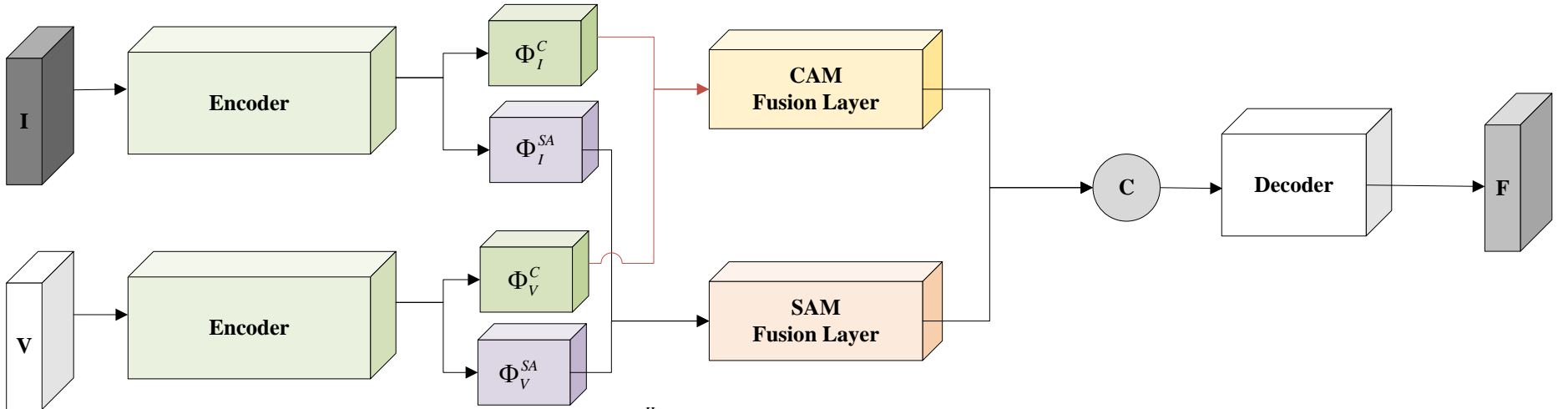**(a)**

$$L_{total}^{I} = \alpha 1 L_{ir} + \alpha 2 L_{vis} + \alpha 3 L_{decomp} + \alpha 4 L_{grad}$$

(b)

$$L_{total}^{II} = L_{MSE} + \alpha 5 L_{decomp} + \alpha 6 L_{grad}$$